The results are not easy to evaluate, as the symptoms complained of are largely subjective. In the present series an attempt was made to follow the patients' progress by means of repeated vaginal smears, but, unfortunately, the records are incomplete in this respect, partly because the patients were erratic in their attendances at the clinic.

### THE PRESENT INVESTIGATION

The clinical results obtained in this small series may be summarized as follows: A total of 13 patients received treatment with dienoestrol, all for menopausal flushing or senile vaginitis. Two must be discounted, as they attended the clinic only once and were not seen again.

Of the remaining 11 five were having a natural menopause; one had had a surgical menopause for endometriosis at 38 years; two had had hysterectomy (presumably without removal of both ovaries) 14 and 15 years ago respectively; three had had a radium menopause. The symptoms and signs were: seven had hot flushes only; two had signs and symptoms of senile vaginitis; two had both conditions.

The results of treatment with dienoestrol, using a dose of 0.1 mg. by mouth twice daily for one or more periods of four weeks, were as follows: Hot flushes relieved or cured, 7 cases; hot flushes slightly relieved, but responded better to stilboestrol (1 mg. twice daily), 1 case; hot flushes not relieved by dienoestrol but cured by stilboestrol (1 mg. twice daily), 1 case. Larger doses of dienoestrol would probably have been effective in these two cases. Senile vaginitis was relieved or cured in all the four patients treated for this condition.

As already mentioned, an effort was made to obtain objective evidence of the effects of treatment by means of serial vaginal smears. A smear was taken at each attendance—that is, every four weeks. In three patients the senile change was not sufficiently advanced before treatment was begun to say that there had been any change. In three others there was definite evidence of an oestrogenic effect, but in the remaining five the changes were too indefinite to warrant any conclusion.

All the patients were carefully questioned for toxic effects. None experienced nausea or vomiting. One patient had a slight vaginal haemorrhage. One other patient stated that the tablets "made her feel depressed," and she stopped taking them. Her hot flushes were subsequently relieved with stilboestrol.

### CONCLUSIONS

It is unfortunate that it has not been possible to make these tests in a larger series of menopausal patients. The results obtained in this small group indicate, however, that dienoestrol is a safe and non-toxic oestrogen: and it is to be hoped that it will be possible for other workers to carry out more extensive trials.

This investigation was carried out in the Obstetric Unit, University College Hospital, on behalf of the Therapeutic Trials Committee of the Medical Research Council. Pressure of other duties has prevented my testing dienoestrol in a larger series of menopausal cases, and the present Memorandum is therefore published mainly as an encouragement to other workers to continue the tests.

I am indebted to Messrs. Boots Pure Drug Co. Ltd., British Drug Houses Ltd., and Glaxo Laboratories Ltd., for supplies of dienoestrol.

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## "Inspiratory Borborygmi" as a Sign of Diaphragmatic Hernia

The diagnosis of diaphragmatic hernia has been made with increasing frequency in recent years, and it has come to be recognized as a not uncommon cause of obscure respiratory and abdominal symptoms. The symptoms are, however, in no way distinctive, and signs are in many cases indefinite or entirely lacking. As a result these patients are often wrongly diagnosed, and may even be subjected to operations without the true nature of the condition being recognized. Harrington (1938) found that in a series of 123 cases of diaphragmatic hernia an average of 3 previous erroneous clinical diagnoses had been made, and operations for gall-stones and gastric ulcer had frequently been carried out without relief. Diseases of the thorax, abdomen, or blood (hypochromic anaemia) may be simulated, and for this reason diaphragmatic hernia has been termed the "masquerader of the upper abdomen." In a case recently under my care the diagnosis was suggested by a sign which I have not seen previously described.

### CASE RECORD

The patient, a woman of 74, was admitted to St. Nicholas Hospital complaining of cough and dyspnoea. She gave a history of migraine from puberty to the menopause, and strangulated inguinal hernia 10 years ago. Apart from this she was well till 5 years ago, when she began to have attacks of cough and breathlessness lasting 4 to 6 weeks at a time and recurring about once a year. An attack was preceded by a grunting noise in her stomach which she felt with each breath. She also suffers occasionally from pain in the left chest and back. For the last 8 months she has been increasingly short of breath on exertion, and if she eats a big meal she has abdominal pain and a sense of suffocation, and has to sit down and rest for a time. Several days before her admission to hospital she noticed the usual grunting noise in her stomach. This was followed by vomiting and diarrhoea, and later by cough and dyspnoea. A few days after her admission the attack had passed off, but she complained of pain in her left chest passing through to the back. On examination she was found to be a fairly well nourished woman. She lay flat in bed and was in no obvious distress. A grunting, borborygmus-like sound synchronous with inspiration could be constantly heard coming from her abdomen during the examination. With the stethoscope this sound was found to be most readily audible over the left lower chest and epigastrium. It ceased when the patient held her breath or sat up. Physical examination, apart from some moist sounds at the bases of the lungs, was negative. The blood pressure was 160/85.

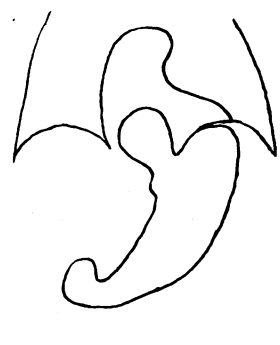

FIG. 1.—Antero-posterior view. Hernia can be seen lying behind lower part of heart shadow.

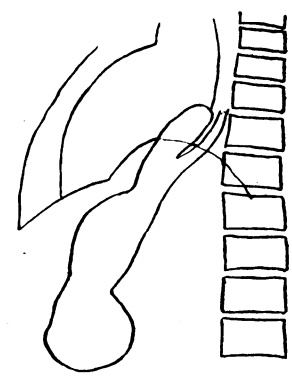

FIG. 2.—Lateral view. Hernia is seen to pass up into the posterior mediastinum in front of the oesophagus.

A barium meal revealed a shadow superimposed on the lower part of the heart shadow in the supine position (Fig. 1). In the erect position it was seen to empty during expiration and fill with barium from below at each inspiration. The hernia was observed to contain a portion of the cardiac end of the stomach and to be situated in the posterior mediastinum in front of the oesophagus (Fig. 2). It was therefore a para-oesophageal hiatus hernia, according to Akerlund's (1926) classification.

### DISCUSSION

"Gurgling at the left base" has been mentioned in several accounts of the disease; but it is not diagnostic, as it is heard in many other conditions and in normal subjects by transmission of the sounds from the abdomen. Unless the gurgling sound is heard in the left side of the chest, is synchronous with respiration, and stops when the breath is held it is not diagnostic. The mechanism by which this sign is produced is simple. During inspiration the intra-abdominal pressure is increased. At the same time the pressure in the thorax becomes more negative. As a result gastric contents, both fluid and gaseous, are forced into the herniated portion of the stomach, so producing the gurgling sound. If in the upright position the fluid level in the stomach is below the opening into the herniated pouch, only gas will pass to and fro and so the sign will disappear, returning when the patient lies down again. I have not encountered this sign in any other disease.

*Addendum.*—A further case of diaphragmatic hernia in which this sign was present has since been encountered. This was also a hiatus hernia, but of the gastro-oesophageal type, the lower end of the oesophagus being pushed up through the hiatus as well as the fundus of the stomach. The sounds were best heard over the praecordium, the patient lying on her left side.

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